

Please cancel claims 1-14.

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Listing of the Claims

1-14. (Canceled)

15. (New) A method for increasing oil recovery from an oil reservoir in which method gas is injected into the reservoir, comprising:

separating air into an oxygen-rich fraction and a nitrogen-rich fraction;

providing a natural gas stream, and leading the natural gas stream and at least a part of the oxygen-rich fraction to a reformer for conversion to synthesis gas mainly comprising H₂, CO, CO₂ and lower amounts of non-converted methane, water vapor and nitrogen;

forming higher hydrocarbons from the synthesis gas in a synthesis unit;

withdrawing raw synthesis products and a waste gas from the synthesis unit; and

injecting the nitrogen-rich fraction and at least a part of the waste gas into the oil reservoir to increase the oil recovery from the reservoir.

16. (New) A method according to claim 15, wherein steam or water generated during at least one of the syngas production and synthesis is injected into the reservoir.

17. (New) A plant for providing gas for down-hole injection for pressure support in an oil reservoir for recovery of hydrocarbons and production of oxygenated hydrocarbons or higher hydrocarbons from natural gas, comprising:

an air separation unit for production of an oxygen-rich fraction for supply to processes that require oxygen and a nitrogen-rich fraction for injection;

a reformer for conversion of a mixture of natural gas, water and oxygen or oxygen-enriched air from the air separation unit into a synthesis gas comprising mainly H₂, CO, CO₂ and small amounts of methane in addition to any inert gas;

a synthesis unit for conversion of the synthesis gas for synthesis of higher hydrocarbons;

means for injecting gas into the reservoir;

means for transferring nitrogen from the air separation unit to the means for injecting gas; and

means for transferring at least a part of a waste gas from the synthesis unit to the means for injecting gas.

18. (New) The plant according to claim 17, further comprising a tail gas treatment unit for removing CO by a shift reaction and separation of hydrogen from the remaining tail gas.

19. (New) The plant according to claim 18, further comprising means for transferring the remaining tail gas from the tail gas treatment unit to the means for injecting gas.

20. (New) The plant according to claim 17, wherein the synthesis unit comprises one or more once-through Fischer-Tropsch units for synthesis of higher hydrocarbons.

21. (New) The plant according to claim 18, wherein the synthesis unit comprises one or more once-through Fischer-Tropsch units for synthesis of higher hydrocarbons.
22. (New) The plant according to claim 19, wherein the synthesis unit comprises one or more once-through Fischer-Tropsch units for synthesis of higher hydrocarbons.
23. (New) The plant according to claim 20, further comprising means for introducing at least a part of the separated hydrogen from the tail gas treatment unit into a Fischer-Tropsch loop to adjust a H₂/CO ratio to a desired level.
24. (New) A method for increasing oil recovery from an oil reservoir in which method gas is injected into the reservoir, comprising:
- supplying compressed air;
 - providing a natural gas stream, and leading the natural gas stream and at least a part of the air stream to a reformer for conversion to synthesis gas mainly comprising N₂, H₂, CO, CO₂ and lower amounts of non-converted methane and water vapor;
 - forming higher hydrocarbons from the synthesis gas in a synthesis unit;
 - withdrawing raw synthesis products and a nitrogen-rich waste gas from the synthesis unit; and
 - injecting at least a part of the nitrogen-rich waste gas into the oil reservoir to increase the oil recovery from the reservoir.

25. (New) The method according to claim 24, wherein steam or water generated during at least one of the syngas production and synthesis is injected into the reservoir.

26. (New) A plant for providing gas for down-hole injection for pressure support in an oil reservoir for recovery of hydrocarbons and production of oxygenated hydrocarbons or higher hydrocarbons from natural gas, comprising:

an air compression unit for production of compressed air for supply to processes that require air;

a reformer for conversion of a mixture of natural gas, water and air from the air compression unit into a synthesis gas comprising mainly N₂, H₂, CO, CO₂ and small amounts of methane;

a synthesis unit for conversion of the synthesis gas for synthesis of higher hydrocarbons;

means for injecting gas into the reservoir; and

means for transferring at least a part of the nitrogen-rich waste gas from the synthesis unit to the means for injecting gas.

27. (New) The plant according to claim 26, further comprising a tail gas treatment unit for removing CO by a shift reaction and separating hydrogen from the remaining tail gas.

28. (New) The plant according to claim 26, further comprising means for transferring the remaining tail gas from the tail gas treatment unit to the means for injecting gas.

29. (New) The plant according to claim 26, wherein the synthesis unit comprises one or more once-through Fischer-Tropsch units for synthesis of higher hydrocarbons.

30. (New) The plant according to claim 27, wherein the synthesis unit comprises one or more once-through Fischer-Tropsch units for synthesis of higher hydrocarbons.

31. (New) The plant according to claim 28, wherein the synthesis unit comprises one or more once-through Fischer-Tropsch units for synthesis of higher hydrocarbons.

32. (New) The plant according to claim 29, further comprising a means for introducing at least a part of the separated hydrogen from the tail gas treatment unit into a Fischer-Tropsch loop to adjust a H₂/CO ratio to a desired level.